



Carrickfergus Borough Council

**Local Air Quality
Management
Progress Report**

April 2005



1. Introduction

The local air quality management (LAQM) system was introduced by the Environment (Northern Ireland) Order 2002 and subsequent Regulations. Under this legislation District councils are required to review the present quality of air and the likely future quality of air and assess whether the nationally prescribed objectives are likely to be achieved.

This Progress Report is a requirement of Government guidance issued in 2003 (LAQM.PGNI(03)) which set out the timescales for submission of the various reports on air quality. This report has been prepared in accordance with EHS guidance LAQM.PRGNI(04).

2. Synopsis of Carrickfergus Borough Council Air Quality Review and Assessment Process to Date

Air quality monitoring of NO₂ and SO₂ using diffusion tubes has been ongoing Carrickfergus Borough since March 1997. Real time monitoring of SO₂ and PM₁₀ commenced in July 2002 at the Councils Rosebrook Grove site and continues to date.

The First Stage Air Quality Review and Assessment completed February 2001 concluded that the pollutants indicated in the following table namely, NO₂ from roads and industrial sources, SO₂ from industrial and domestic sources and PM₁₀ from industrial and domestic sources, should be examined during the second stage review.

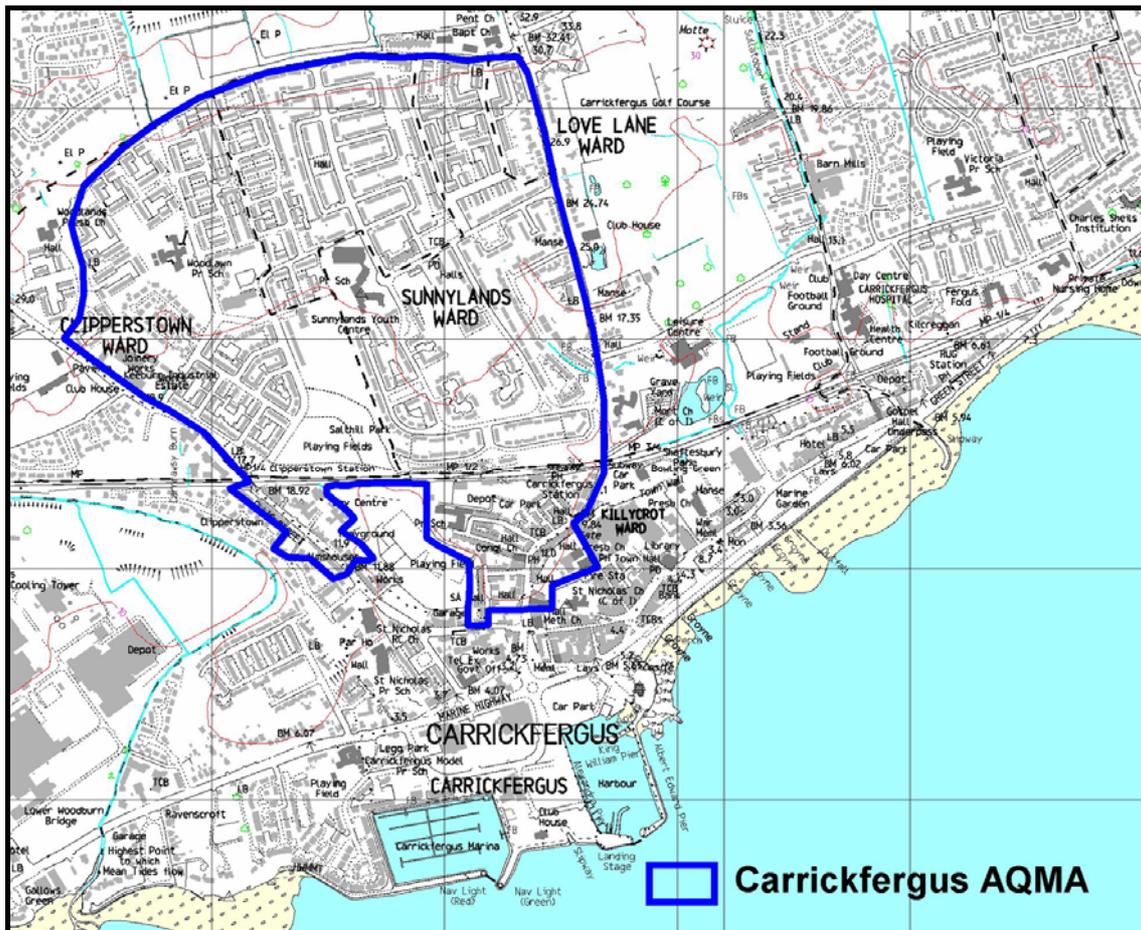
Pollutant	Exceedances Road Sources	Exceedances Industrial Sources	Exceedances Domestic Sources	Progress to Second Stage Review
Carbon Monoxide	None	None	None	No
Benzene	None	None	None	No
1,3 Butadiene	None	None	None	No
Lead	None	None	None	No
Nitrogen Dioxide	Yes	Yes	None	Yes
Sulphur Dioxide	None	Yes	Yes	Yes
PM ₁₀	Yes	No	Yes	Yes

The Second Stage Assessment completed in February 2002 excluded SO₂ and PM₁₀ from industrial sources and NO₂ from industrial and road sources.



Third Stage Review and Assessment completed in June 2004 determined on the basis of modelling results, that as a precautionary measure, it was necessary to declare two Air Quality Management Areas for PM10 from Domestic sources, one in Carrickfergus town and the other in Greenisland as detailed in the maps below.

Carrickfergus AQMA



The final report (Stage 4) on the more detailed modelling of PM10 from domestic sources has just been received and its conclusions are as follows.

Particulate Matter (PM₁₀ gravimetric)

“Detailed modelling has shown that PM₁₀ emissions arising from domestic fuel combustion in Carrickfergus Borough Council are not predicted to cause an exceedance of the PM₁₀ objectives at relevant receptors within the assessed areas”.

Sulphur dioxide (SO₂)

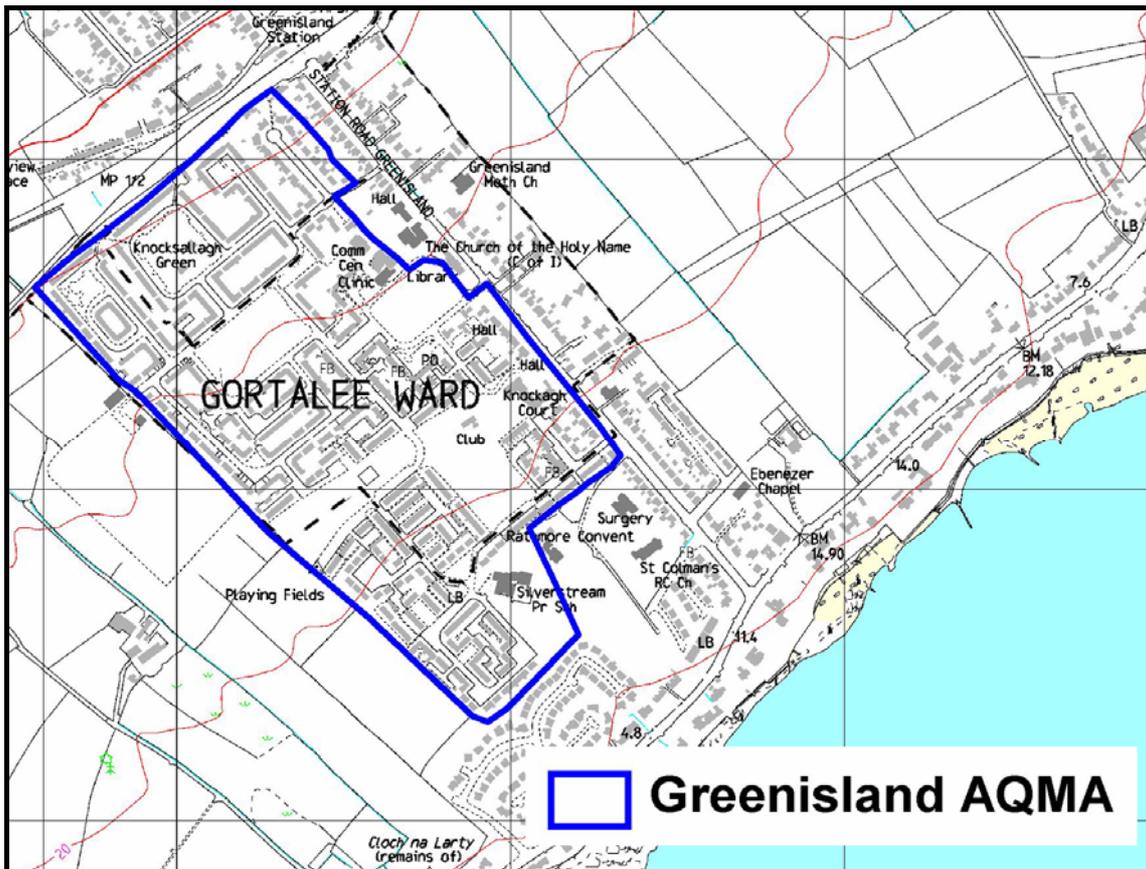
“Detailed modelling has shown that SO₂ emissions arising from domestic fuel combustion in Carrickfergus Borough Council are not predicted to cause an exceedance of the air quality objectives at relevant receptors within the assessed areas. This further confirms the findings



of the earlier stage 3 assessment. The modelling has not predicted any exceedance of the regulated objectives.

Carrickfergus Borough Council may wish to consider revocation of the AQMA on the basis of these results”.

Greenisland AQMA

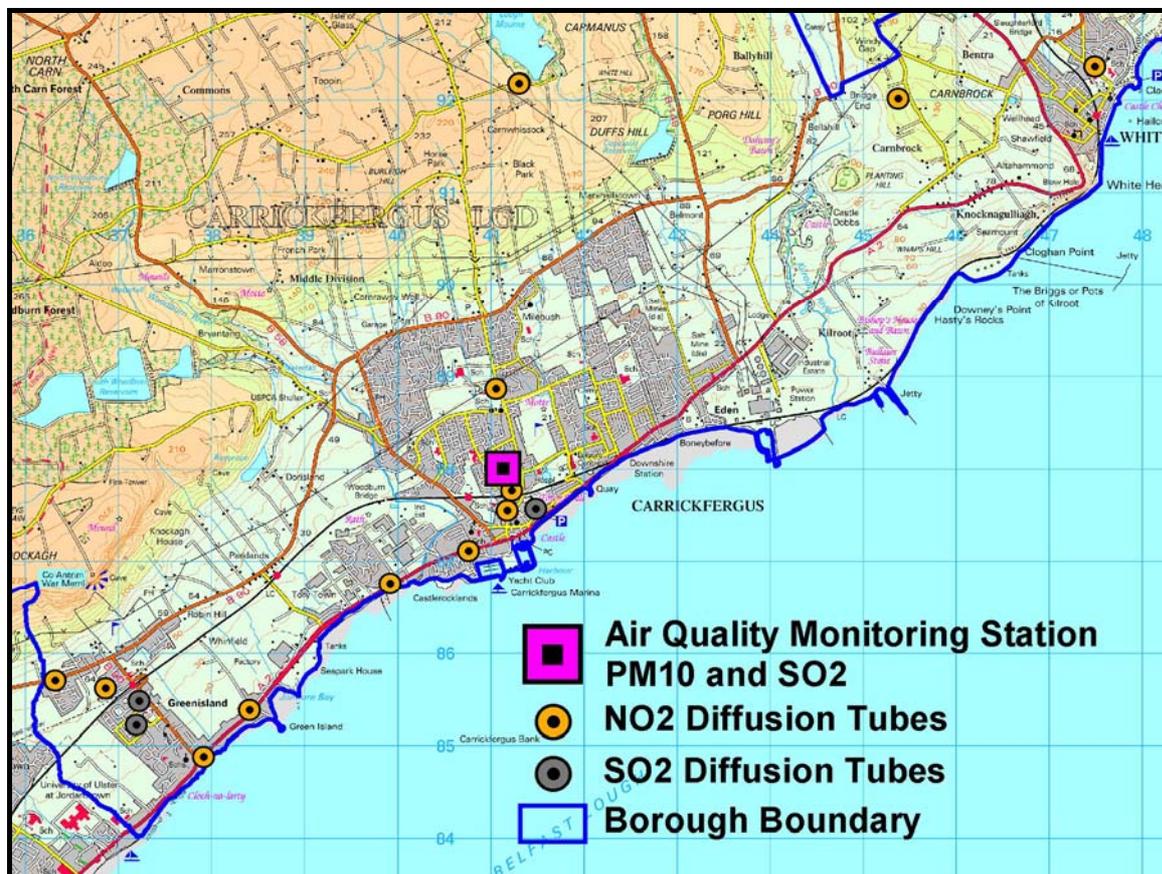


3. Air Quality Monitoring Locations

Council currently maintains 13 NO2 diffusion tubes, five SO2 diffusion tubes and a real time Air Quality Monitoring Station at Rosebrook Grove in Carrickfergus Town. This station monitors PM10, SO2 and meteorological data. The diffusion tubes are located throughout the Borough in a variety of roadside urban, urban background and rural locations, see map below.



Location of Air Quality Monitoring Points



4. Summary Tables of PM10 and Sulphur Dioxide Concentrations Carrickfergus Rosebrook Avenue 01 January to 31 December 2004

These data sets have been fully ratified by netcen

POLLUTANT	PM ₁₀	SO ₂
Number Very High	0	0
Number High	0	0
Number Moderate	10	0
Number Low	8653	34310
Maximum 15-minute mean	344 µg m ⁻³	144 µg m ⁻³
Maximum hourly mean	192 µg m ⁻³	120 µg m ⁻³
Maximum running 8-hour mean	83 µg m ⁻³	59 µg m ⁻³
Maximum running 24-hour mean	52 µg m ⁻³	31 µg m ⁻³
Maximum daily mean	47 µg m ⁻³	26 µg m ⁻³
Average	16 µg m ⁻³	5 µg m ⁻³
Data capture	98.3 %	99.7 %

All mass units are at 20°C and 1013mb NO_x mass units are NO_x as NO₂



Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	4	4
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 40 µg m ⁻³	0	-
Sulphur Dioxide	15-minute mean > 266 µg m ⁻³	0	0
Sulphur Dioxide	Hourly mean > 350 µg m ⁻³	0	0
Sulphur Dioxide	Daily mean > 125 µg m ⁻³	0	0

Carrickfergus Rosebrook Avenue 01 January to 31 March 2005

These data sets have been fully ratified by netcen

POLLUTANT	PM ₁₀	SO ₂
Number Very High	0	0
Number High	0	0
Number Moderate	0	0
Number Low	2160	7715
Maximum 15-minute mean	184 µg m ⁻³	117 µg m ⁻³
Maximum hourly mean	139 µg m ⁻³	93 µg m ⁻³
Maximum running 8-hour mean	87 µg m ⁻³	46 µg m ⁻³
Maximum running 24-hour mean	46 µg m ⁻³	19 µg m ⁻³
Maximum daily mean	41 µg m ⁻³	18 µg m ⁻³
Average	16 µg m ⁻³	5 µg m ⁻³
Data capture	98.8 %	91.2 %

All mass units are at 20°C and 1013mb NO_x mass units are NO_x as NO₂

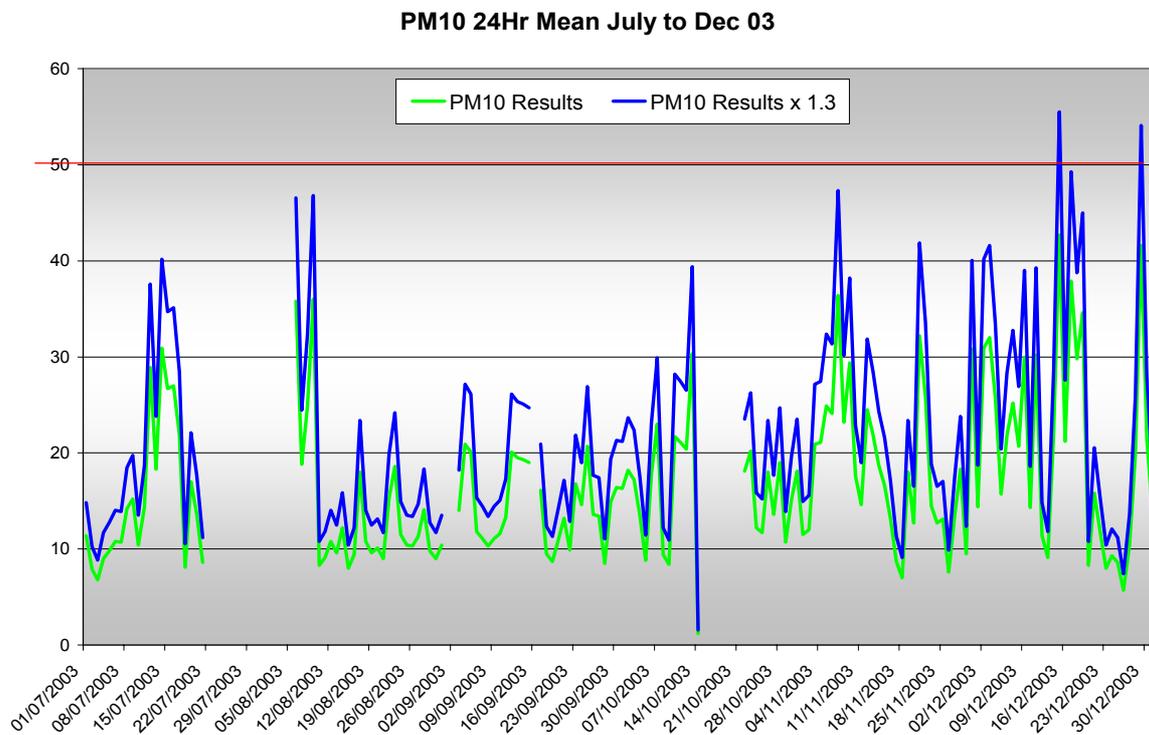
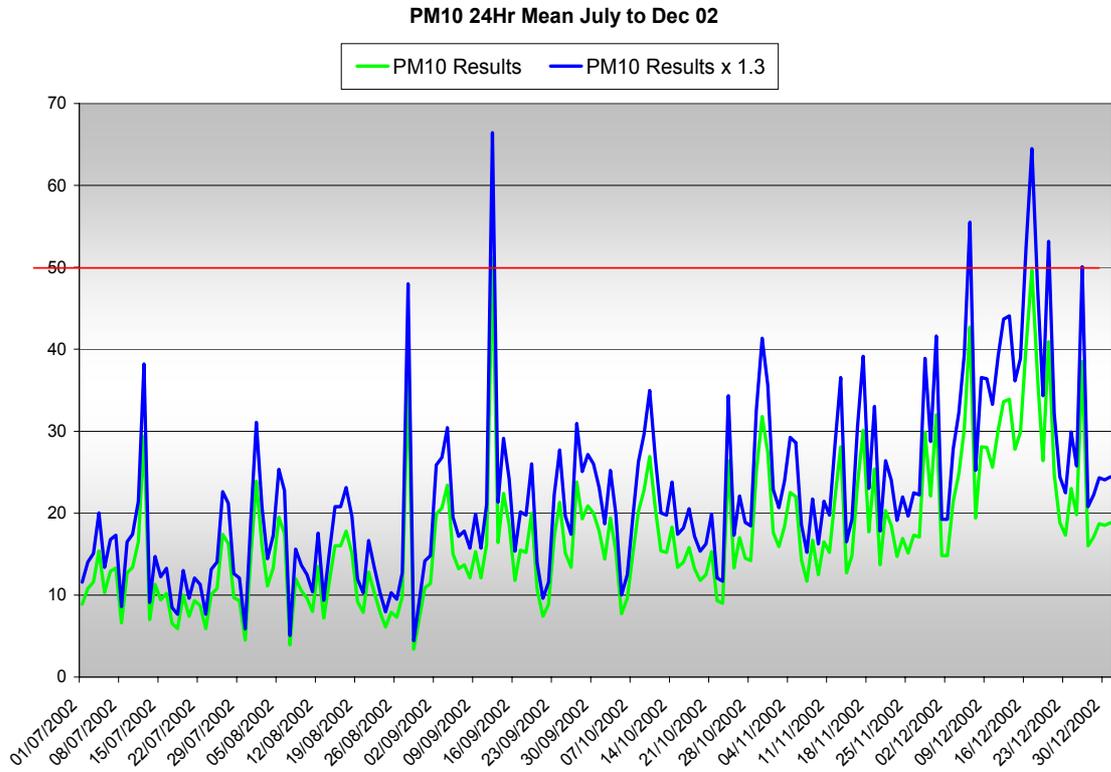
Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	2	2
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 40 µg m ⁻³	0	-
Sulphur Dioxide	15-minute mean > 266 µg m ⁻³	0	0
Sulphur Dioxide	Hourly mean > 350 µg m ⁻³	0	0
Sulphur Dioxide	Daily mean > 125 µg m ⁻³	0	0

Summary of Unratified PM10 Data

Time Period	Nos Exceedences PM10 24Hr Mean (Inc 1.3 Multiplier)	Capture Rate (Percentage)
July-Dec 2002	6	100
Jan-June 2003	11	74.5
July-Dec 2003	2	89
Jan-May 2004	3	100



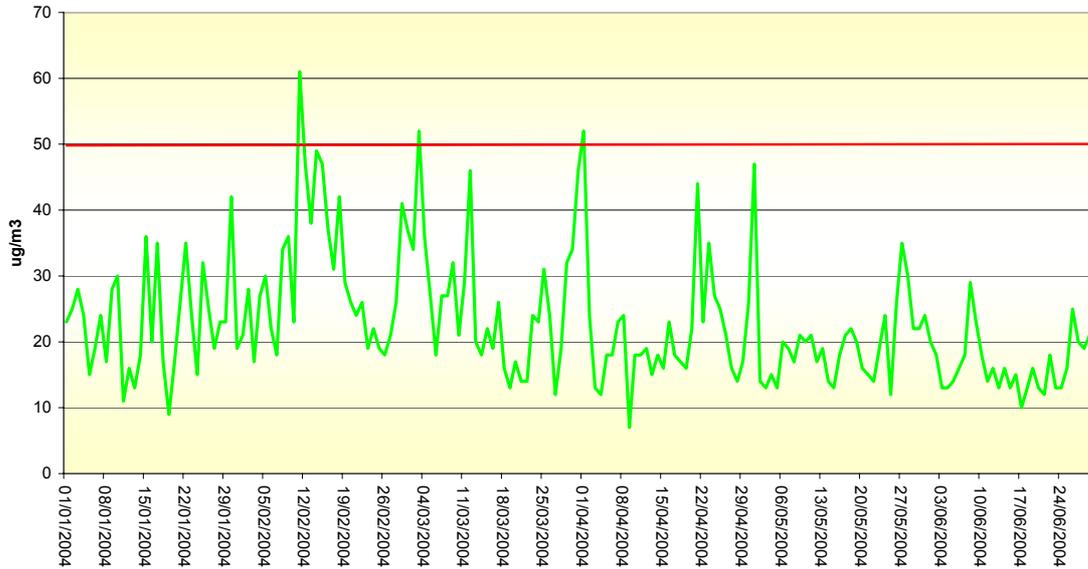
5. Plots Showing Trends in Concentrations PM10 Results Unratified



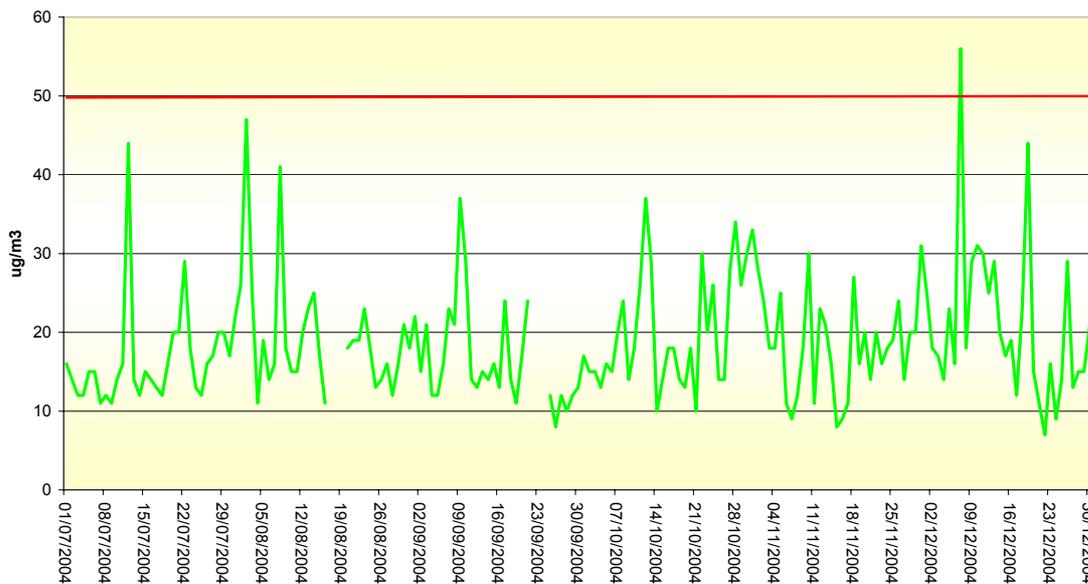


PM10 Results Ratified

PM10 ug m-3 Gravimetric 24 Hr Mean
1 Jan 04 to 30 June 04

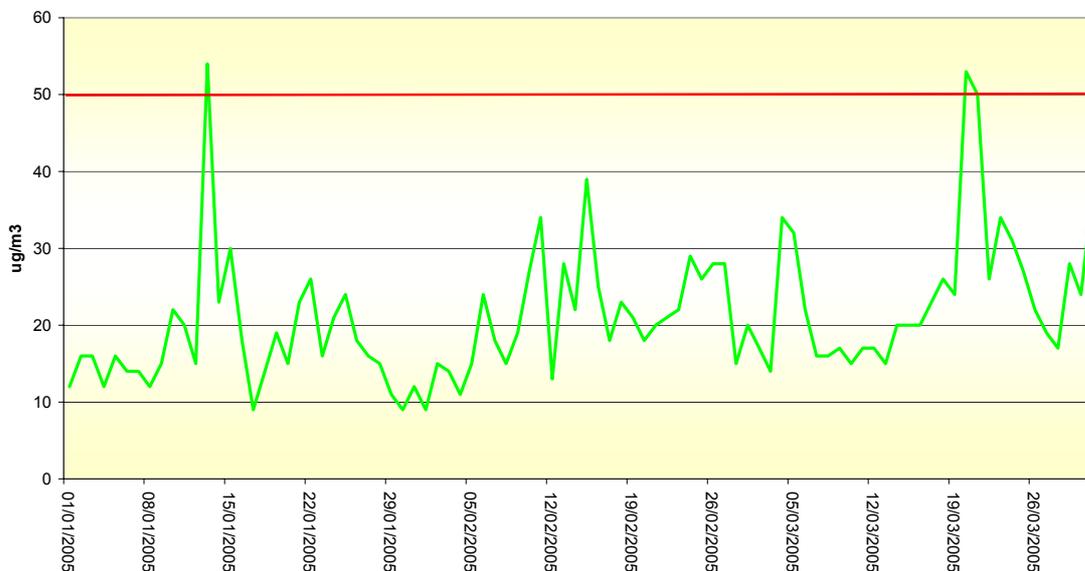


PM10 ug m-3 Gravimetric 24 Hr Mean
1 July 04 to 31 Dec 04





PM10 ug m-3 Gravimetric 24 Hr Mean
1 Jan 05 to 31 March 05



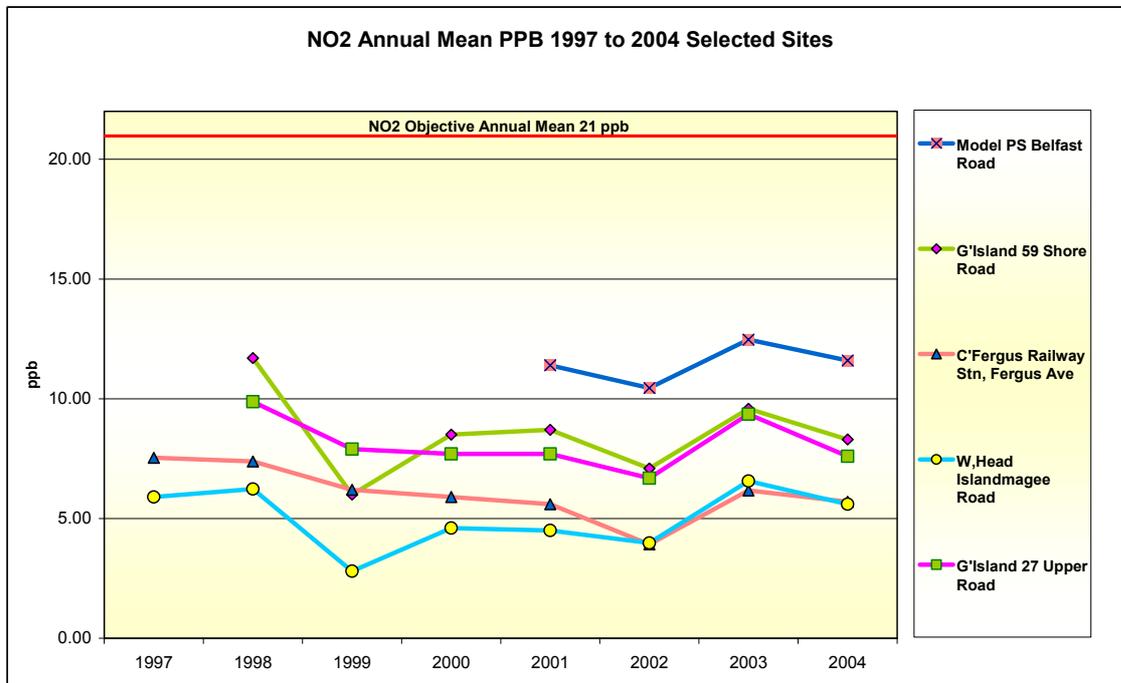
6. Nitrogen Dioxide Diffusion Tubes

Location 2005	CBC Site Nos	Site Type
C'Fergus Victoria Road Lamp post 11	13	Kerbside
W'Head Islandmagee Road	5	Kerbside
W'Head 28 Bentra Rd	11	Rural
Loughmourne Lough Rd	7	Rural
C'Fergus College North Road	2	Urban Background
C'Fergus Railway Stn, Fergus Ave	3	Intermediate
C'Fergus 42 Albert Road	8	Kerbside
C'Fergus Model PS Belfast Road	6	Kerbside
G'Island 59 Shore Road	10	Kerbside
G'Island 32 Mullaghmore Park	1	Urban Background
G'Island 27 Upper Road	9	Kerbside
G'Island 186 Shore Road	12	Kerbside
C'Fergus 93 Belfast Road	4	Kerbside

The graph below illustrated the results from a selection of the NO2 monitoring points. The highest readings are obtained from sites along the A2 Shore Road which carries approximately 30000 vehicles per day. The next highest results are from a location on the B90 Upper Road which carries approximately 15000 vehicles per day. None of the NO2 monitoring site exceeds the annual objective of 21ppb.



7. Nitrogen Dioxide Diffusion Tube Results



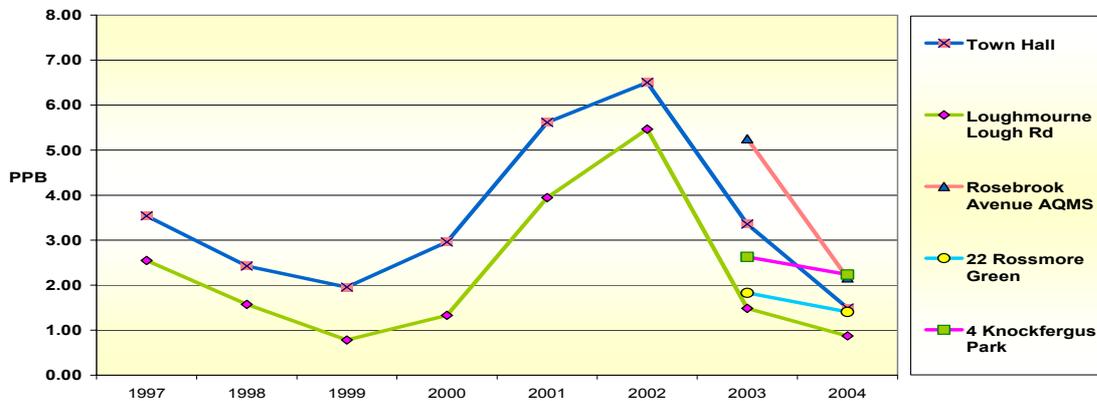
Note the NO2 diffusion tubes results have no been bias adjusted.

8. Sulphur Dioxide Diffusion Tubes

Location	Site
Town Hall Carrickfergus	Urban
Lough Road Loughmourne	Rural
Rosebrook Avenue Carrickfergus	Urban Co-located with real time SO2 Analyser
22 Rossmore Green Greenisland	Urban
4 Knockfergus Park Greenisland	Urban



SO2 Annual Mean PPB 1997 to 2004



9. Planning Applications that may have the Potential to Impact on Air Quality

Residential Applications

Address	Town	Date	App Nos	Proposal	Houses	Apts	Total Nos
Ashbourne Manor	Carrickfergus	2001/07	V/2001/0279/F	Housing Development	39	0	39
Land North of Brackenridge	Carrickfergus	2001/07	V/2001/0175/F	Housing Development	156	6	162
17 Old Shore Road	Carrickfergus	2002/05	V/2002/0134/F	Housing Development	23	10	33
149 Larne Road	Carrickfergus	2002/10	V/2002/0260/F	Housing Development	0	15	15
77 Woodburn Road	Carrickfergus	2002/12	V/2002/0346	Housing Development	25	0	25
Northland Road	Carrickfergus	2002/12	V/2002/0362	Housing Development	22	0	22
1 Northland Road	Carrickfergus	2002/12	V/2002/0364	Housing Development	32	0	32
5-15 Cheston Street	Carrickfergus	2003/04	V/2003/0108/F	Housing Development	1	33	34
21-25 Lancasterian Street	Carrickfergus	2003/05	V/2003/0106/F	Housing Development	0	19	19
102 Prince Andrew Way	Carrickfergus	2003/05	V/2003/0093/F	Housing Development	24	0	24
Barn Mills	Carrickfergus	2003/10	V/2003/0262/F	Housing Development	23	23	23
22 Scotch Quarter	Carrickfergus	2004/01	V/2003/0373	Housing Development	0	19	19
33 North Road	Carrickfergus	2004/07	V/1998/0183	Housing Development	0	24	24
19 Downshire Road	Carrickfergus	2005/02	V/2005/0005/O	Housing Development	0	0	32
90-97 Larne Road	Carrickfergus	2005/03	V/2005/0030/F	Housing Development	29	4	33
7 North Road	Carrickfergus	2005/03	V/2005/0054/O	Housing Development	0	18	18
108 Larne Road	Carrickfergus	2005/03	V/2005/0071/F	Housing Development	7	20	27
45 Shore Road	Greenisland	2005/05	V/2005/0121/F	Housing Development	0	30	30

The table above lists applications for housing of greater than 15 units received since 2001. As the majority of new housing use either natural gas or oil as their main heating source they are not expected to add significantly to PM10 or SO2 emissions.



Industrial Applications

Address	Town	Date	App Nos	App Class	Proposal
84 Paisley Road	Rural	2004/7	V/2004/0220/F	Class B2 General Industrial	Engineering Repair Workshop
Victoria Cemetery	Carrickfergus	2003	V/2003/0215/F	Class B2 Light Industrial	Monumental Sculptor
23 Watch Hill Road	Rural	2005	V/2005/0011/F	Class B2 Light Industrial	Assembly Electrical Compons

None of the above industrial proposals are expected to add significantly to atmospheric emissions.

Roads Applications

No major new roads have been constructed in the Borough in the last five years. The Belfast Metropolitan Transport Plan does include proposals to widen the two lane carriageway of the A2 Shore Road at Greenisland to four lanes by 2012. This should remove the congestion experienced at this bottleneck and improve traffic flow.

New Landfill Sites

No new landfill sites have been approved in the Borough in the last five years.

10. Next Steps

a) Monitoring

Continuous monitoring already in place will continue together with QC ratification of the data.

b) Review of Existing Air Quality Management Areas

The existing AQMAs will be re-examined in the light of the Stage Four Netcen recommendations and the 2010 Air Quality Standards. The decision, whether or not, to revoke the AQMAs, will be taken after this appraisal.

c) Preparation for the next round of Air Quality Review and Assessment in 2006.

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